

AMENDMENTS TO THE CLAIMS

Please amend claims 2, 3, 4, 5, 8, and 11, and cancel claim 1 and 12, as set forth in the listing of claims that follows:

1. (Cancelled)
2. (Currently Amended) The gas sensor as in Claim 13 ~~4~~, further comprising a heater disposed adjacent to the insulating layer.
3. (Currently Amended) The gas sensor as in Claim 13 ~~4~~, further comprising a protective insulating layer disposed adjacent to the first electrode.
4. (Currently Amended) The gas sensor of Claim 13 ~~4~~, wherein the frit comprises a material selected from the group consisting of alkaline earth metals and rare earths, and oxides, alloys, and combinations comprising at least one of the foregoing materials.
5. (Currently Amended) The gas sensor of Claim 13 ~~4~~, wherein the insulating layer comprises up to about 10 wt% frit.
6. (Original) The gas sensor of Claim 5, wherein the insulating layer comprises about 2 wt% to about 8 wt% frit.
7. (Original) The gas sensor of Claim 6, wherein the insulating layer comprises about 4 wt% to about 6 wt% frit

8. (Currently Amended) The gas sensor of Claim 13 ~~4~~, wherein the insulating layer has a resistivity of about 700 MΩ•cm or greater at about 800°C.

9. (Original) The gas sensor of Claim 8, wherein the insulating layer has a resistivity of about 1,000 MΩ•cm or greater at about 800°C.

10. (Original) The gas sensor of Claim 9, wherein the insulating layer has a resistivity of about 1,500 MΩ•cm or greater at about 800°C.

11. (Currently Amended) The gas sensor of Claim 13 ~~4~~, wherein the frit comprises a material selected from the group consisting of lanthanum, cerium, praseodymium, neodymium, samarium, europium, gadolinium, dysprosium, boron, silicon, scandium, yttrium, aluminum, and oxides, alloys, and combinations comprising at least one of the foregoing materials.

12. (Cancelled)

13. (Previously Presented) A gas sensor, comprising:
an electrolyte layer having disposed on opposite sides thereof a first electrode and a second electrode; and

an insulating layer that is in intimate contact with the second electrode, wherein the insulating layer comprises alumina and frit;

wherein the frit comprises about 35 mol% to about 70 mol% silica, 0 mol% to about 30 mol% boria, 0 mol% to about 26 mol% alumina, 0 to about 25 mol% yttria, 0 to about 26 mol% RE₂O₃ where RE₂O₃ is La₂O₃, three valent rare earth oxides, or combinations comprising at least one of the foregoing RE₂O₃s.

14. (Original) The gas sensor of Claim 13, wherein the frit comprises about 20 mol% to about 25 mol% alumina, about 2 mol% to about 8 mol% yttria, about 20 mol% to about 25 mol% lanthana, and 0.5 mol% to about 10 mol% boria.

15. (Previously Presented) The gas sensor of Claim 13, wherein the frit comprises about 4 mol% to about 13 mol% boria, 12 mol% to about 27 mol% alumina, about 3 mol% to about 13 mol% yttria, and 0 mol% to about 20 mol% scandia.

16. (Previously Presented) The gas sensor of Claim 13, wherein the frit comprises less than about 0.25 mol%, based upon the total mol% of the frit, of elements selected from the group consisting of lead, phosphorus, barium, calcium, magnesium, strontium, lithium, sodium, potassium, and combinations comprising at least one of the foregoing elements.

17. (Previously Presented) The gas sensor of Claim 16, wherein the frit comprises less than about 0.025 mol% of the elements.

18 - 39. (Cancelled)

40. (Previously Presented) A gas sensor, comprising:
an electrolyte layer having disposed on opposite sides thereof a first electrode and a second electrode; and
an insulating layer disposed adjacent the second electrode, on a side of the second electrode opposite the electrolyte, wherein the insulating layer comprises alumina and frit;
wherein the frit comprises greater than or equal to about 35 mol% silica, 0 mol% to about 30 mol% boria, 0 mol% to about 26 mol% alumina, 0 to about 25 mol% yttria, 0 to about 26 mol% RE₂O₃ where RE₂O₃ is La₂O₃, three valent rare earth oxides, or combinations comprising at least one of the foregoing RE₂O₃s.

41. (Previously Presented) The gas sensor of Claim 40, wherein the frit comprises about 45 mol% to about 60 mol% silica.

42. (Previously Presented) The gas sensor of Claim 41, wherein the frit further comprises about 15 mol% to about 25 mol% alumina and about 15 mol% to about 25 mol% yttria.

43. (Previously Presented) The gas sensor of Claim 41, wherein the frit further comprises about 1 mol% to about 9 mol% boria, 17 mol% to about 27 mol% alumina, about 1 mol% to about 3 mol% yttria, and about 17 mol% to about 27 mol% lanthana.

44. (Previously Presented) The gas sensor of Claim 41, wherein the frit further comprises about 4 mol% to about 13 mol% boria, 12 mol% to about 27 mol% alumina, about 3 mol% to about 13 mol% yttria, and 0 to about 20 mol% scandia.

45. (Previously Presented) The gas sensor of Claim 1, wherein the frit has a thermal expansion coefficient of about $60 \times 10^{-7} \text{ K}^{-1}$ to about $102 \times 10^{-7} \text{ K}^{-1}$.